

Paper

# Post-operative telephone review is cost-effective and acceptable to patients.

Gray RT, Sut MK, Badger SA, Harvey CF.

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## ABSTRACT

**Introduction** Patients undergoing selective minor emergency and elective procedures are followed up by a nurse-led structured telephone review six weeks post-operatively in our hospital. Our study objectives were to review patients' satisfaction, assess cost-effectiveness and compare our practice with other surgical units in Northern Ireland (NI).

**Patients and Methods** Completed telephone follow-up forms were reviewed retrospectively for a three-year period and cost savings calculated. Fifty patients were contacted prospectively by telephone using a questionnaire to assess satisfaction of this follow-up. A postal questionnaire was sent to 68 general and vascular surgeons in NI, assessing individual preferences for patient follow-up.

**Results** A total of 1378 patients received a telephone review from September 2005 to September 2008. One thousand one hundred and seventy-seven (85.4%) were successfully contacted, while 201 (14.6%) did not respond despite multiple attempts. One hundred and forty-seven respondents (10.7%) required further outpatient follow-up, thereby saving 1231 outpatient reviews, equivalent to £41,509 per annum. Thirty-nine (78%) patients expected post-operative follow-up, with 29 (58%) expecting this in the outpatient department. However, all patients were satisfied with the nurse-led telephone review. Fifty-three (78%) consultants responded. Those who always, or occasionally, review patients post-operatively varies according to the operation performed, ranging from 2.2% appendicectomy patients to 40.0% for varicose vein surgery.

**Conclusion** Current practice in NI varies, but a significant proportion of patients are not routinely reviewed. This study confirmed that patients expect post-operative follow-up. A nurse-led telephone review service is acceptable to patients, cost-effective and reduces the number of unnecessary outpatient reviews.

**Keywords** Telephone review, telephone follow-up, post-operative.

## INTRODUCTION

Telephone consultations are increasingly being used as a novel approach to supplement or replace traditional outpatient care for various acute or chronic conditions.<sup>1</sup> The evolving healthcare environment of the past two decades has seen a trend towards shortened hospital admissions with increased patient turnover. Conversely, there has also been a decrease in scheduled, hospital-based, medical follow-up.<sup>2</sup> Traditionally surgeons reviewed every patient post-operatively.<sup>3</sup> However, in a bid to save resources and cut costs many patients undergoing some elective procedures are now discharged without any formal outpatient follow-up. Post-operative telephone review has been proposed as an alternative method of follow-up for patients who have underwent surgical procedures with an anticipated, inherent, low risk of complication.<sup>1</sup> A telephone screening service of carefully selected post-operative surgical patients will help reduce routine out-patient reviews. This should facilitate more rapid appointments for new patients thereby helping meet government targets of time to assessment and treatment.

Patients undergoing selective minor emergency or elective procedures, without any post-operative complication, at our institution are followed up by a structured telephone review

instead of the traditional surgical outpatient review. It occurs six weeks post-operatively and is nurse-led. Our study objectives were to review patients' satisfaction of this method of follow-up, assess cost effectiveness over a one-year period and to compare our practice with that of other general surgical units in Northern Ireland (NI).

## PATIENTS AND METHODS

A system of telephone review at our institution was established in 2004. The ward for the admission of most elective cases is the Elective Surgical Unit. The most commonly undertaken procedures, which are followed up post-operatively with a telephone consultation include laparoscopic cholecystectomy, inguinal and paraumbilical hernia repair, other hernia repair (e.g. incisional or ventral herniae), varicose vein surgery, circumcision, excision of subcutaneous lesions (e.g. large lipomas), carpal tunnel release and appendicectomies. Structured post-operative telephone review forms are

Department of Surgery, Mater Hospital, Belfast Health and Social Care Trust, Crumlin Road, Belfast BT14 6AB

Correspondence to Dr. Gray

rgray05@qub.ac.uk

TABLE 1.  
*Patient Satisfaction Questionnaire*

Question	Strongly agree	Agree	No strong opinion	Disagree	Strongly disagree
The outcome of your surgery was satisfactory					
Your pre-operative assessment in the outpatient clinic was satisfactory					
You expected to be followed up post-operatively					
You expected this follow-up to be in the surgical outpatient clinic					
You expected to be reviewed by a doctor post-operatively					
You were happy with being reviewed by a nurse					
You were happy with the telephone review					
You were happy with the timing of the telephone review					
You could discuss your worries over the phone					
It would have been easier to discuss your concerns at an outpatient clinic					
Overall you were happy with the service provided					
You would recommend the service to a friend					

completed six weeks following discharge, by trained senior surgical nurses. This consultation addresses pain and analgesia requirements, wound healing and a return to baseline function. It also asks specifically about resolution of symptoms following carpal tunnel release, recurrence of hernias and jaundice, vomiting or diarrhoea following laparoscopic cholecystectomy. Based on the response of the patient they are either discharged back to their general practitioner (GP) or a surgical outpatient appointment is made.

Completed telephone follow-up forms were available for retrospective review for a three-year period from September 2005 to September 2008. The primary outcome was the requirement for surgical outpatient review, while the secondary outcome was the nature of any complication. The cost of a single surgical outpatient review was obtained from the finance department at our institution. The cost of review actually decreased for each year that was studied being £112.04, £111.05 and £95.35 per review for the one year periods between 2005 and 2008. An average cost of review was calculated at £106.15 and for clarity this was used to estimate the cost savings of the telephone review service compared with routinely reviewing all patients at the outpatient centre. The costs involved in running the telephone follow-up service were estimated by the hospital finance department at £2048 per annum based on the salary of a senior nurse for 3 hours per week (52 weeks per year), the average cost of telephone calls (including landline and mobile) and 201 second class stamps.

Fifty patients were contacted prospectively by telephone with a questionnaire (Table 1) to assess general expectation for post-operative follow-up and satisfaction of the follow-up service provided. Responses to both positive and negative statements were recorded using a Likert scale.

Finally, in order to compare our practice with that of other surgical units performing the above procedures, a postal questionnaire was sent to all 68 general and vascular

surgeons in NI, assessing individual preferences for patient follow-up. Consultants were asked to simply document how they reviewed these patients, with categories of always, occasionally, subsequent to a complication or never. For simplicity the latter two options were combined within the results section as "no routine review".

## RESULTS

A total of 1,378 patients received a telephone review from September 2005 to September 2008 including 459 inguinal, 68 paraumbilical and 38 other hernia repairs; 453 laparoscopic cholecystectomies, 193 varicose veins, 43 appendicectomies, 17 subcutaneous lesion excisions, 22 carpal tunnel releases and 19 circumcisions. One thousand one hundred and seventy-seven (85.4%) of these patients were successfully contacted, while 201 (14.6%) did not respond despite multiple attempts. Of the respondents, only 147 (10.7%) required further outpatient follow-up, thereby saving 1231 outpatient reviews, equivalent to £130,670 or an average of £43,557 per annum. If the cost of operating the service is deducted this leaves a nett saving of £41,509 per annum.

The procedures that most commonly required outpatient review were laparoscopic cholecystectomy (n=47/453; 10.4%), inguinal hernia repair (n=46/459; 10.2%) and varicose vein surgery (n=23/193; 11.9%). In total, 80 (54.4%) of the 147 patients, who required outpatient review, attended for assessment of post-operative pain, where the majority were following laparoscopic cholecystectomy (n=34; 23%), inguinal hernia repair (n=30; 20%), and varicose vein surgery (n=9; 6%). Forty-five (31%) patients required review due to wound healing, complaining of discharge (n=16; 11%), swelling (n=15; 10%), inflammation (n=5; 3%) and numbness (n=9; 6%). Four patients following hernia repair, both inguinal (n=2; 1%) and paraumbilical (n=2; 1%), requested review regarding possible recurrence. Finally, 4 (2%) varicose vein surgery patients requested review to discuss the removal of further veins.

Thirty-nine (78%) patients either agreed, or strongly agreed, that they expected to be followed up post-operatively, with 29 (58%) expecting this in the outpatient department and 30 (60%) expecting review with a doctor. However, all 50 (100%) patients were satisfied with the nurse led telephone review. Forty-six (92%) patients were happy with the timing of the review while only 9 (18%) patients considered it easier to discuss any concerns at an outpatient clinic. Only one (2%) patient was dissatisfied with the outcome of surgery but all 50 (100%) patients were happy with the overall service provided and would recommend it to a friend.

Fifty-three (78%) consultants responded. Only 52 completed consultant questionnaires were analyzed, however, as one of the respondents no longer performed any of the aforementioned procedures. Consultant review practices are summarized in Table 2 but in the vast majority of cases patients are usually offered no routine review. Those who always, or occasionally, review patients post-operatively varies according to the operation performed: inguinal hernia repair 27.6%, paraumbilical hernia repair 34.6%, hernia repair (other) 65.2%, circumcision 21.6%, varicose veins 40.0%, laparoscopic cholecystectomy 33.4%, subcutaneous lesion 13.0% and appendicectomy 2.2%.

Review of the qualitative section of the questionnaire showed a telephone review service is in place in another institution, while a further hospital has a rapid access Surgical Assessment Unit, where patients with complications can be rapidly reviewed. Interestingly, three consultants reported that they review all laparoscopic hernia repairs. Finally, thirteen consultants who review following a reported complication suggested that they routinely discharge the majority of their patients without follow-up. They indicated, however, that patients are provided with an open invitation to contact medical secretaries, the ward or the rapid access unit in the event of a complication.

## DISCUSSION

From its inception, the telephone has become increasingly more important in delivering health-care. Indeed, Bell's first recorded telephone call was for medical attention after accidentally spilling sulphuric acid on himself. There is evidence to support telephone consultations due to increased patient satisfaction, less time waiting in outpatient clinics, reduced travel expenses and potential for increased frequency of contact.<sup>1</sup> They are used in the management of asthma, diabetes, epilepsy, traumatic brain injury, rheumatology, mental health and oncology.<sup>3</sup> Both doctor and nurse-led triage services have also been successfully piloted in emergency departments and general practice.<sup>3,4</sup> Telephone follow-up has also proved successful after ambulatory or day case surgery to reassure patients and manage potential early complications in the first two days.<sup>5</sup>

In the background of a high discharge rate at the initial review following transurethral prostatectomy, Brough *et al*, in 1996, showed that a nurse-led telephone review service was a valuable screening tool to identify patients who require an outpatient review.<sup>6</sup> Since then, the concept of screening patients through the medium of a nurse-led telephone consultation has been successfully implemented in various aspects of surgery. In 2000, Rosbe *et al* stated that a telephone follow-up at 3-4 weeks following adenotonsillectomy is safe and cost-effective in paediatric patients, being also desirable to parents.<sup>7</sup> In 2007, McVay *et al* demonstrated that it was appropriate for other paediatric surgical procedures. For a similar list of surgical procedures to our own, post-operative telephone follow-up was deemed to be safe and preferable to patients' families.<sup>3</sup>

The main benefit of this form of review is the reduction of unnecessary reviews, following procedures with a low risk of complications, when most are likely to be discharged at initial review. This short consultation is frustrating to the patient

TABLE 2.

*Consultant Review Practices. Individual preferences for follow-up recorded as a number and percentage of those surgeons actually performing the procedure. (SOPD = Surgical Outpatient Department).*

Operation	SOPD review always (%)	SOPD review occasionally (%)	No routine review (%)
Repair of inguinal hernia	4 (8.5)	9 (19.1)	34 (72.3)
Repair of paraumbilical hernia	5 (10.2)	12 (24.4)	32 (65.3)
Repair of hernia (other)	5 (10.9)	25 (54.3)	16 (34.8)
Circumcision	2 (5.4)	6 (16.2)	29 (78.3)
Varicose veins	10 (25.0)	6 (15.0)	24 (60.0)
Laparoscopic cholecystectomy	8 (17.8)	7 (15.6)	30 (66.7)
Excision of subcutaneous lesion	0 (0)	6 (13.0)	40 (87.0)
Appendicectomy	0 (0)	1 (2.2)	45 (97.8)

and carries a high risk of non-attendance, thereby wasting valuable resources. However, our study confirms that patients do expect post-operative follow-up in some form, if only to provide simple reassurance. Our high patient satisfaction with post-operative telephone review demonstrates that this service can adequately provide the reassurance and review patients expect.

The small numbers (10.7%) of those contacted requiring formal review is comparable to other similar studies. Wedderburn *et al*, in a postal questionnaire, two weeks following inguinal hernia repair and varicose vein surgery found that only 6.7% of patients considered outpatient review beneficial.<sup>8</sup> In this study, due to the implementation of thorough follow-up procedures at our unit, non-responders were included in the group of patients who didn't require further review. The unit protocol is for up to two attempts by telephone at six weeks to be made to contact the patient, followed by a standard letter requesting the patient to contact the unit. The 201 uncontactable patients would have been educated thoroughly on this form of follow-up and been given the ward number to contact if any concerns arose. Therefore it is unlikely they required referral or re-admission to our unit or another surgical unit without contacting the team first. Optimum timing of review is debatable, but since telephone follow-up is intended to replace traditional review it is usually scheduled 4-6 weeks post-operatively. Patients should receive adequate education on discharge, with early complications managed in the usual manner.

Certain procedures require formal review, which explains the low numbers of these in our cohort. The particularly difficult nature of an incisional hernia repair may be a prerequisite for outpatient review. Similarly, following unilateral release of the carpal tunnel, the patient may return for consideration of contralateral release. Finally, the need to communicate histopathology results may be a reason for occasionally reviewing patients.

A limitation of our study is that of the 147 patients reviewed we have not formally assessed whether this appointment added anything to patient care over and above what the GP would provide. We appreciate this is relevant as one could argue whether telephone review is necessary or whether discharging all patients to the care of the GP with review only on request is more appropriate. However, the nurses in charge of the scheme are experienced senior surgical staff and do refer many patients to their GP first, therefore we feel that after screening, these reviews would have been appropriate.

The postal questionnaire of consultants had an impressive response rate probably due to its brevity. There are variable preferences in review patterns. For seven of the eight operations studied the vast majority of consultants discharge their patients with no routine review yet we have shown that patients expect post-operative follow-up. A post-operative telephone review service is a cost-effective method of providing the follow-up patients expect but often do not receive. The most interesting point from the survey however, is that for almost all of the operations studied, some consultants still review all patients. This is most striking following laparoscopic cholecystectomy and varicose vein surgery with 17.8% and 25%, respectively. This represents a significant number of reviews, which could be better facilitated via a nurse-led telephone review service and thus free up resources for more appropriate usage.

In conclusion, this study confirms that patients expect post-operative follow-up, even for procedures we would consider as routine. A nurse-led telephone review provides this adequately, is acceptable to patients, cost-effective and reduces the number of unnecessary outpatient reviews.

The authors have no conflict of interest.

## REFERENCES

1. Car J, Sheikh A. Telephone consultations. *Br Med J* 2003; **326**: 966-969.
2. Moran SJ, Jarvis S, Ewings P, Parkin FA. It's good to talk, but is it effective? A comparative study of telephone support following day surgery. *Clinical Effectiveness in Nursing* 1998; **2**: 175-182.
3. McVay MR, Kelley KR, Mathews DL, Jackson RJ, Kokoska ER, Smith SD. Postoperative follow-up: is a phone call enough? *J Pediatr Surg* 2008; **43**: 83-86.
4. Jones J, Clarke W, Bradford J, Dougherty J. Efficacy of a telephone follow-up system in the emergency department. *J Emerg Med* 1988; **6**: 249-254.
5. Fallis WM, Scurrah D. Outpatient laparoscopic cholecystectomy: home visits versus telephone follow-up. *Can J Surg* 2001; **44**: 39-44.
6. Brough RJ, Pidd H, O'Flynn KJ, Payne SR. Identification of patients requiring out-patient follow-up after transurethral prostatectomy: is there a role for nurse-led screening of post-operative outcomes by telephone? *Br J Urol* 1996; **78**: 401-404.
7. Rosbe KW, Jones D, Jalisi S, Bray MA. Efficacy of post-operative follow-up telephone calls for patients who underwent adenotonsillectomy. *Arch Otolaryngol Head Neck Surg* 2000; **126**: 718-722.
8. Wedderburn AW, Dodds SR, Morris GE. A survey of post-operative care after day case surgery. *Ann R Coll Surg Eng* 1996; **78**(2 Suppl): 70-71.